DATA SHEET

OPERATOR: General Crude Oil Co. ADDRESS: 1890 Colo. State Bank Bldg.

> 1600 Broadway Denver, Colorado

WELL NAME: Federal-Lone Tree #1

LOCATION: 3300 FWL, 652 FNL COUNTY: Converse STATE: Wyoming

WELL CLASSIFICATION: Wildcat

ELEVATION: GL 5664.2 KB 5680.0

DATE SPUDDED: 1:00 A.M., 6/22/75 DATE DRILLING CEASED: 7/22/75

CONTRACTOR: Westburne Drilling Co.

Tool Pusher: Ken Bailer Drillers: Reed Boyles

Camron Gentry Tom Tillman

EQUIPMENT:

Drawworks: National Ideal Type 55 Drawworks Power: 3-CAT-D353 Diesels

#1 Pump Power: Compounded #1 Pump: National D-700 14"x6" #2 Pump: National D-700 14"x6" Derrick: Lee C. Moore #2 Pump Power: Compounded

Drill Pipe: 4-1/2" E/6" Tool Joint Drill Collars: 7-7" and 14-6-1/4"

9-5/8" to 1108' CASING:

5-1/2" to 10,072

GEOLOGIST: A. R. Renfro SUPERVISION:

Casper, Wyoming From: 1110 To: 9910

ENGINEER: J. H. van Ierland

Calgary, Alberta, Canada

DRILLING FLUID:

Type: Chem. and Gel Company: Wilson Mud Co. Engineer: Jim Tomlin

OPEN HOLE TESTS:

Type: Lynes Company: Lynes United Engineer: Bob Criswell

CORES:

Type: Full Hole Company: Hiller Co. Engineer: Ron Lain

GAS DETECTION:

Type: Continuous hot wire and chromatograph

Company: Bayles Lab. Engineer: Ray Sullivan

Unit on at 1110, off at 10,164

CHEMI'AL & GEOLOGICAL LABOR " ORIES

P. O. Box 2794 Casper, Wyoming

CORE ANALYSIS REPORT

Company_	General Crude Company	DateJuly 9	1975 Lab. No.	16769
Well No	Fed. Lone Tree No. 1	Location	NW NE 17-35N-67W	
Field	Wildcat	Formation	2nd Frontier	
County	Converse	Depths		
State	Wyoming	Drilling Fluid		
Γ	CCrack	LEGEND	S-	—Slight
	FFracture HHorizontal	NF-No Fracture	v	-Stain -Vertical
-	O—Open	IS-Insufficient Sample	. •	u-Vugs

1			EFFECTIVE		ABILITY		ATIONS	
SAMPLE HO.	LEGEND	DEPTH, PERT	POROSITY PERCENT	HORIZONTAL	VERTICAL	% PORE SPACE	% PORE SPACE	
				707.101.12	12471242		TOTAL WATER	
						}		
		Core Numbe	1 076	n_0822 p	beauarad	KO Foot		
1		COLE Mampe	1, 5/0	2-9022, N	ecovered	ou reet.]	
1		0762 01 Ch	. N.	0 = 1]	
1		9762-81, Sha	e - 110	Analysis				
1, 1	VE	9781-82	2.7	0.05		T	05 1	
	VF VF	9782-83	2.7 3.3	0.05		Trace	95.4 67.1	
2	V F	9783-84	3.7	0.03		Trace 0	96.2	
3		9784-85	3.9	0.08		i	98.5	
4	VF			1		Trace		
5	۷F	9785-86	8.5	0.75		5.7	54.8	
6	NF	9786-87	6.6	0.15	1	11.1	77.2	
7	NF	9787-88	7.1	0.20		10.3	71.7	
8	NF	9788-89	7.4	0.12		9.9	63.3	
9	NF .	9789-90	8.2	0.27		8.9	50.9	
10	NF	9790-91	8.1	0.36	1	9.1	52.2	
	NF	9791-92	6.8	0.14	1	3.6	82.1	
12	NF	9792-93	6.4	0.12	ì	Trace	83.8	
13	NF	9793-94	7.8	0.14	1	6.3	54.1	
14	NF	9794-95	7.5	0.13		6.5	74.2	
15	NF	9795-96	7.2	0.15	ł	6.7	73.6	
16	VF	9796-97	8.0	0.07		6.1	69.8	
17	NF	9797-98	6.4	0.06	{	7.7	87.0	
18	VF	9798-99	7.3	0.08		6.7	76.0	
19	VF	9799-9800	7.1	0.08		6.9	72.3	•
20	VF	9800-01	8.0	0.13	1	6.1	77.7	
21	VF	9801-02	8.8	0.15		5.6	60.7	
22	VF	9802-03	8.0	0.07		6.1	63.9	
23	VF	9803-04	6.2	0.07		7.9	82.8	
24	VF	9804-05	8.2	0.10		3.0	79.1	
25	VF	9805-06	10.0	0.03		2.4	64.4	
26	VF	9806-07	8.1	0.09		3.0	74.3	
27	VF	9807-08	10.7	0.08		Trace	68.4	
28	VF	9808-09	9.6	0.06		Trace	73.9	
29	VF	9809-10	8.3	0.09		Trace	88.8	
30	VF	9810-11	9.8	0.06		Trace	72.6	
31	VF	9811-12	10.8	0.07	ļ	Trace	68.2	· ·
32	VF	9812-13	9.1	0.04		Trace	51.1	·
33	VF	9813-14	10.9	0.08		Trace	67.3	
34	VF	9814-15	6.5	0.02		Trace	88.7	
35	VF	9815-16	9.5	0.09		Trace	65.8	
					1		1	
1	1			}	1	1	1	1
		-						

C—Crack
F—Fracture
H—Horizontal
O—Open

LEGEND

NF-No Practure

15-Insufficient Sample

S-Blight St-Brain V-Vertical Vn-Vuga

******	LEGEND	DEPTH, PERT	POROBITY		ABILITY ARCIES	SATUR	
₩0 ,			PERCENT	HORIZONTAL	VERTICAL	RESIDUAL OIL	TOTAL WATER
		Core Number	l, cont	nued.			
36 37 38 39 40 41	VF VF VF VF VF	9816-17 9817-18 9818-19 9819-20 9820-21 9821-22	10.7 10.4 11.7 7.8 11.3	0.08 0.11 0.15 0.05 0.20 0.46		Trace Trace Trace Trace Trace Trace	57.9 66.4 54.9 82.1 66.9 56.9

ate	, Remarks	Lone Tree

NE 22, 1975	SPUDDED 1:	00 AM JUNE 22, 1975
6/22/75	PTD 413	Drilling. Dev: ½ @ 140'; ½ @ 413'.
6/23/75	PTD 1,110'	(made 876') NU. Ran 28 jnts. 9 5/8" csg.; 36# & 32# H-40, Rge. 3 ST&C new csg. w/shoe, float collar, 3 centralizers, landed csg. at 1108.14' KB. Cemented
		by Howco w/1050 cu. ft. oilwell cement + 2% CaCl ₂ - ½% Flo-seal (100% excess). Displacing press. 700 p
		Bumped plug w/1000 psi @ 10:15 pm June 22. Had 20 bbls returns. Surveys: ½ deg. @ 413'; 3/4 deg. @ 619'; 3/4 deg. @ 806'; 3/4 deg. @ 900'; 1 deg. @ 1,000'; 1 deg. @ 1,100'. TCC: \$12,340.
6/24	PTD 2,439'	1,000'; 1 deg. @ 1,100'. TCC: \$12,340. (made 1,329' in 24 hrs) Drlg thru interbedded lt-dk
		olive grey sh & v. fine-fine sand. Drlg. rate 1-5 mins/5'. Press. tstg Hydrill, pipe rams & blin rams to 1500 psi for 15 mins. Dev: 1 deg @ 1650';
6/25	PTD 3,840'	$1\frac{1}{2}$ deg @ 2150'. 2 unts BGG. (made 1,525' in 16 $\frac{1}{4}$ hrs) Drlg shale: dk olive grey
0,23	3,010	sltly silty - sltly calc. MW 8.3#; visc 28; pH 10. Mud & chems CaCl ₂ , 4 sx Separan 30, 3 sx lime. Surveys: 2½ deg @ 2439'; 2 deg @ 2700'; 2½ deg @
6/26	PTD 4,772'	3192'; 2½ deg @ 3813'. 2 unts BGG. TCC: \$67,892. (made 932') Drlg. shale: med-lt grey calc. Smpl corpoor. Sand Zone 4313-38' greyish-wht, v. fine-grain
		friable, clay-filled. EST. TEAPOT @ 5,028'. Drlg. rate 1½ mins/ft. Circ. sump for clear wtr drlg. Losing wtr from sump. MW 8.3#; visc. 29, pH 10.
		Dev: 2 deg @ 4461'. 2 unts BGG, 5 unts Trp gas @ 4467'. TCC: \$76,267.
6/27	PTD 5,480'	(made 708' in 17 hrs) Drlg in PARKMAN SS: med-v lt. grey, v. fine-grained, calc. cement, slightly frial Est. porosity 10-15%. thin interbeds of coal. NO S Smpl condit. fair. Drlg rate 1-1½ mins/ft. 2 unts 5 unts Trp gas @ 5089'. 15 unts dry gas at 5552'
		definitely from coal zone. Sample tops: TEAPOT at 5,065' (+615'); PARKMAN at 5,462' (+218'). MW 8.3% visc 28; pH 10. Dev: 1½ deg @ 4899'; 1 3/4 deg. 54
		(Strapped out @ 5,089' - had 33' depth corr.) Est. hit Shannon late Sun.
6/28	PTD 6,254'	(made 774' in 17 3/4 hrs) Drlg. MW 8.3#; visc. 29; pH 10; 1500 PP; 54 spm.
6/29	PTD 6,854'	(made 600' in 14½ hrs) Drlg. MW 8.3#; visc 29; pH 1 1450 PP; 54 spm. Devs: 1 3/4 deg @ 6316; 2 deg @ 6
6/30	PTD 7,560'	(made 706 in 18 3/4 hrs) Drlg. MW 8.3#; visc. 29; pH 10; 1450 PP; 54 spm. Devs: 2 deg @ 7386'. Drlg
		shale: It olive grey, silty, platy. Smpls 30% bento lt olive grey-yellowish white. Smpl condit. fair.
		Drlg rate $1-1\frac{1}{2}$ mins/ft. 10 unts BGG. Revised top: PARKMAN @ 5439' (+241'). New tops: STEELE @ 5910'
		(-230'); SHANNON @ 7312' (-1632'). Drlg break 7312 in min/ft in Shannon sand: med-v. lt grey, v. fine-fine grained, poorly sorted, sub-angular, mod. glau
		mod. calc. Est. porosity 20-25%. NO SAMPLE SHOWS. 23 unts BGG @ 7265-7312'. Went to 200 unts gas @ 7312-18', all C ₁ , dropped to 20 unts immediately.

7/1	PTD 8.209' (made 594' in 24 h-s) MW 8.3#, visc. 29; pH 10.
	Drlg Shale 80%: med olive grey, silty, soft; 20%
	bentonite. Smpl condit. fair. Drlg rate: 1½ mins/ft.
	No drlg breaks. Dev: 1½ deg @ 7677'. 20 unts BGG.
	50 unts Trp gas @ 7677'.
7/2	PTD 8,500' (made 291') Drlg shale: med olive grey, soft, weakly
	calc, 20-30% bentonite. Smpl condit poor-fair.
	Drlg rate: 1-1½ mins/ft. Dev: 1½ deg @ 8435'.
	Drlg rate: 1-1½ mins/ft. Dev: 1½ deg @ 8435'. 20 unts BGG, 60 unts Trp gas @ 8435'. Core Barrel on location: 60'; OD 8 15/16"; ID 4½", diamond.
	on location: 60'; OD 8 15/16"; ID 4½", diamond.
	Cleaned 160' to BOH on trp. MW 8.3#; visc 29, pH 10;
	WOB 30-40000; 72 rpm; 1400 PP; 54 spm. TCC \$117,961
7/2	DWD 0 00/1 / 1 /0/1) Dwla -h-l Jh -l' 1 C 1
7/3	PTD 8,984' (made 484') Drlg shale: dk olive grey, v. calc. Smpl condit. poor-fair. Drlg rate: 2 mins/ft w/range
	from 1-4 mins/ft. Dev: 1 3/4 deg @ 8984'. WOB
	45,000; 72 rpm; 1400 PP; 54 spm; pH 9.5; 8.3# MW;
	visc 29. 160-200 unts BGG. TENTATIVE SAMPLE TOP
	FOR NIOBRARA 8742' (-3062'). Will condition &
	mud up tonight. TCC: \$156,658
7/4	PTD 9,320' (made 336') Drlg. Cleaned 300' to btm on trip, some
	tight connections. On bit #9, had washout in DP,
	lost pmp press, bit locked up. Trpd out & found
	hole in DP. 8.7# MW; visc 33; wtr loss 18%;
7/5	pH 9.5. TCC: \$174,021.
7/5	PTD 9,440' (made 120') Circ. smpls. Lost partial circ (40 bbls) at
	9430'. Mixed 35 bbls pill & regained. Tentative FIRST FRONTIER 9420' (-3740'). Cleaned 125' to btm
	on trp. Dev: 1 3/4 deg @ 9348'.
7/6	PTD 9,567' (made 127') Drlg thru fractured fma @ 80% returns. Total
	mud loss 650 bbls. TCC: \$175,974.
7/7	PTD 9,650' (made 83') Drlg shale: v dk olive grey, silty. Smpl
	condit poor. Drlg rate 11 mins/ft. 10 unts BGG,
	30 unts Trp gas @ 9599'. Top CARLILE @ 9160' (-3480)
	No shows 1st Frontier. Estimate 2nd FRONTIER @ 9777'. Tentative coring pt 9772' late pm. 8.9# MW;
	visc. 38; wtr loss 7.6%; WOB 38,000; 44 rpm; 54 spm;
	1400# PP. Drlg w/full returns. Cleaned to botm 60'
	on trp.
7/8	PTD $9,758$ ' (made 108 ' in 24 hrs) Drld dk olive grey shale w/ v. thin
	ss stringers, lt grey v fine-fine grained, tite,
	NO SHOWS. Smpl condit. fair. Drlg rate 15 mins/ft.
	35 unts BGG. 8.9# MW; visc 44; wtr loss 7.7%; pH 9. PREPARING TO CORE. Core point at 9762', will
	prob. cut 8-13' shale above 2nd Frontier.
	prob. cut o 15 share above 2nd Prontier.
7/9	PTD 9,771' (made 13') Coring, Core point 9762' - cut 9' in 3½ hrs.
	MW 9#; visc 38; wtr loss 8%; pH 9.5. Dev: 3/4 deg
	09762'.
7/10	0.0001 (1.511) #
7/10	9,822' (made 51') Trpg. Attmpted DST #1 9783'-9822', could not
	not get to bottom, bridge @ 9524'. Ttl CC: \$197,674.
	TOP SECOND FRONTIER: 9781'. Cored 9762'-9822', cut & rec. 60'. Av por: 7%; av perm: .1 md; av oil
	sat: 6%; av wtr sat: 70%.
	222. 235, 47, 762, 546, 757,

7/11	PTD 9,822'	(made 0' progress) Encountered bridge, will re-attempt DST #1. Trpg out tstg tools. Cleaned 370' to bottom on trip. MW 9#; visc 44; wtr loss 8%; pH 10.
		TCC: \$204,415
7/12	PTD 9,822'	WO tstr. Cleaned 370' soft fill to btm. Appears to be mud cale. MW 8.8; vis 50; wl 8; pH 10.
7/13	9,837'	Drlg. DST #3 9781-9822 Misrun, pkr failed. IH 4616 FH 4566; PF 4167. 60' fill on trp. 8.8# MW; vis 55; w. 8.
7/14	9,910'	(made 73' in 14½ hrs) Logging. Logger depth 9902'. Dev: 9910' 3/4 deg. 9# MW; visc 48, wl 6.5; pH 9.5/ TCC: \$222,730
7/15	9,910	Circ & cond. hole. Ran DILL 9902-1108' & BHC Sonic 9903-1108'. Attmptd to run Formation Density Log but caliper tool broke down. POOH for repairs. Ran in w/same tool to btm. Attmptd to log hole @ 1800 ft/hr, got stuck @ 9658'. Worked logging tool for 3 hrs, came free. Attmptd to log rest of hole, tools broke down. POOH w/tool, ran in w/DP & DB to cond hole. Will attmpt log this pm. 9# MW; visc 55; wl 6.5; pH 9.5
7/16	9,910'	Prep for logging. Hole open 6 hrs. WO Schlumbgr repairs Ran in w/logging tools, hit bridge @ 8970'. Schlumb could not get to btm. POOH. Ran in w/DB to condit. hole. Will attempt log this am/pm. 9.1# MW; visc 58; wl 6.5; pH 9.5/
7/17	9,910	Circ & cond hole for DST. Ran Comp. Neutron Formation Density log from 9900-1108' KB. MW 9#; visc 51; wtr loss 7.2; pH 9.
7/18	9,942'	Did not run DST. Will drill 200' deeper. Trpg. 9# MW; visc 55; wtr loss 8; pH 9. TCC: \$252,147.
7/19	10,000'	Drlg. MW 9#; visc 56; wtr loss 6.8; pH 9.5
7/20	10,022'	(made 22' in 11% hrs) Drlq. MW 9#; visc 57; wtr loss 6.8%; pH 9.5/
7/21	10,123'	(made 101 in 23½ hrs) Drlg. MW 9#; visc 53; wtr loss 6.2; pH 9.5/ TCC: \$263,736. Proposed to TD @ 10,150', base of 3rd Frontier zone.
7/22	TD 10,164'	Logging. Ran DILL 9700-10,164' & CFDC-N 9600-10,164'. Will run DST #4 10,100-TD. Dev: 3/4 deg @ 10,160'. MW 9.1#; visc 71; wtr loss 6.4; pH 9.5/
7/23	10,164'	Trpg in to cond. hole. DST#4: 10,100-10,164'. Dual conventional btm hole test w/7" packers. PF 15 mins, ISI 60 mins; Open 90 mins; FSI 120 mins. IHP 4849; FHP 4793, IFP 127-147, FFP 151-184, ISIP 450, FSIP 224. BHT 178; weak air blow (1" wtr) incr to 3" blow at end of 15 min PF. Weak air blow on valve open incr to strong blow off btm of bucket in 5 mins. Steady

/5	TD 10,164' 7:00 am Start rig & RU Howco to acidize.
/ 3	PB 10,072' 8:00 Fill annulus & pmp 6 bbls 5% HCl, 12 bbls
	10% HF, & 6 bbls 5% HCl into tbg & displace
	btm w/32 bbls 2% KCl Water.
	8:40 Start washing perfs w/l bbl acid away @ 0 ps
	8:45 Wash 1 bb1 at 0 psi
	8:55 Pressure up to 1000 psi w/4 bbl. ½ pressure
	up to 1600 psi w/4 bbl. 2 pressure
	750 psi. Squeezed acid away at 2.5 bpm & 75
	psi. squeezed acid away at 2.5 ppm & 75
	9:06 Acid away. Did not over displace. Instante
	SIP 500 psi.
	9:10 TP 300 psi
	9:25 TP 250 psi
	9:45 TP 100 psi
	10:00 TP 50 psi.
	Set pkr & released Howco. RU to swab. Pulled 9 swab
	rec. 65 bbls KCl water & acid. Swabbed from pkr.
	Little fluid entry, no gas.
	szecze frank energy no gas.
8/6	TD 10,164'
<u> </u>	PB 10,072' Pulling dry swabs since 8 am at 1/hour. Total load
	water recovered is 65 bbls, still have 15 bbls
	yet to recover. Waiting on Orders.
8/7	Shut down. WOO.
8/8	Will run 3-day DST as follows: 3-hr IFP; SIS until
	Sat am; 7-hr FFP; FSI Mon am.
8/11	TD 10,164' POOH w/DST tool. Shld have results this pm.
	PB 10,072'
0 /1 2	
8/12	DST #5: 2nd Frontier (perfs 9788-9796)
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		Remarks Lone Tree
8/15	TD 10,164'	Ran BP & set @ 7500'. Dmpd l sx cmt on plug w/dmp bai
	PB 7,500'	Perfed Shannon 7319-7324'. w 4" csg gun @ 1 shot/ft. LD 39 stnds tbg & ran in w/Howco RTTS tool & set @ 7
		Swabbed to 7296' KB, no fluid entry. Acidized w/100
		gals 15% MCA - ttl load 80 bbls. Started to wash pe w/acid & load disappeared. Tbg press on vacuum. Sw
		56 bbls KCl out of tbg & 13 bbls acid wtr. Made 100 of fluid in 1 hr, no fluid 2nd hr. Shut well in
		level @ packer.
8/16	TD 10,164'	Fluid level @ 5000' from surf. Trace oil on 1st & 2
	PB 7500'	run, no oil rest of day. Pulled 1 swab/hr. Pulled 13½ bbls some acid wtr.
8/17		Shut down for Sunday
8/18	TD 10,164 PB 7500	Fluid level @ 2900' from surf. (Fillup of 25.8 bbls am). Pulled 2 swabs: lst swab rec wtr & tr/oil; 2nd swab rec wtr. Wtr is annulus wtr (took 18.7 bbls to
		annulus). Probably small tubing or packer leak.
8/19	TD 10,164'	Fluid level 5700' @ 6 am. Swabbed 6 am to 5 pm rec
	PB 7500'	fma wtr w/trace oil. R _w water 0.28 @ 74°.
8/20	TD 10,164'	Plugging bắck to perf & test L. Parkman, perfs will
	PB 7,500'	5850'-5860'.
8/21	TD 10,164' PB 7,240'	Cmt squeezed w/HOWCO using 100 sxs cmt (20½ bbls cmt slurry) + 10% salt.
	PB 1,240	12:24pm 300# tbh press & 500# csg press, pmpd 30 bbl 12:31 vol 41 bbls, 500# tbg press, stopped pmp, bl
		down 300#. 12:33 Pressured up to 500#.
		12:33 Pressured up to 500#. 12:39 Vol 43½ bbls, stopped pmp, bled down from 80
		500#.
		12:47 Pmpd ½ bbl, press up to 750#.
		12:48 stopped pmp, bled down from 750-450#. 1:12 ½ bbl vol, pmpd 450-1750#.
		1:13 Stopped pmp, press increased 1750-7500#.
		1:23 Started pmp at 700#, & pressured to 3,000#.
		1:26 3,000# on tbg.
		1:35 2750# on tbg, released press, bled back into HOWCO tanks
		1:39 Repressured to 3,000#.
		1:58 Press stayed, squeeze held, released HOWCO. tbg to 5900'. Rolled to hole w/2% KCl water took 124 bbls. PO tbg, LD RTTS tool, prep t
		perf.
		Perfed Lower Parkman @ 5851-5861'. Used 4" csg gun
		<pre>1/shot/ft for 10 shots. Top cement @ 7240'. RI w/ & tbg & proceeding to swab.</pre>
8/22	TD 10,164'	By 12 noon had swbd 34 b. KCl wtr & 5 b. fma wtr ou
	PB 7,240'	tbg for ttl of 39 b. 12 noon to 5 pm pull 1 swb/hr recovering 3+ b. for ea. swab for ttl of 15.96 b fm

8/22 con't. PB	7,240' Squeezing perfs 5851-5861 10 am mixed 100 sxs cmt +	'). HOWCO on locatn 7 am.
	10:10 Pmpd 34.5 bbls t	bg press 400# displaced cmt.
		sed tbg press nil og press nil displaced cmt.
	10:55 " " "	11 11 11 11
	11:30	"
		" " 3000# Released csg press
	Flowed back l ¹ / ₂ bbls, lost all	cmt, squeeze job no good.
8/23 PB	7:55 am mixed 100 sxs cr	51-61'. HOWCO on loctn 7:30 am. mt + 10% salt. Csg press 800#.
	8:05 Displaced cmt. 8:15 Pmpd ½ bbl Tbg	press 2300# Staging cmt squeez
	8:30 " " " "	" 1500# " " "
	8:45 " " " " " 9:15 " 1/8 bb1 "	" 2150# " " " " " " " " " " " " " " " " " " "
	9:35 " " " "	" 2500# Released csg press
	Held fine, good squeeze. 9:50 Pulled RTTS tool &	tbg.
8/24 SH	UT DOWN FOR SUNDAY	
8/25 PB	5,752' Plugged back. Perfd T l shot/ft. RI & prep	eckla 4322-32 using 4" csg gun w to swab.
8/26 TD PB		mpd 130 bbls wtr, no rtrns. Tri wn tbg. No circ in either case.
8/27 TD PB		to P&A well. Clinton Oil Co. o attempt to complete in 2nd Fro
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